Claims:

- 1. A method for detecting a specific mutation in the B-RAF gene, which comprises:
- (a) subjecting a segment of the B-RAF gene containing the mutation to amplification by a PCR utilizing a DNA polymerase without $3' \rightarrow 5'$ exonuclease activity in the presence of a detection primer and a second primer, wherein 3' end of the detection primer is complementary to a mutated base on a first DNA strand of the B-RAF gene and the second primer is complementary to a segment of the opposite DNA strand of the B-RAF gene and selected such that a detectable amplification product will be produced if the PCR occurs; and
 - (b) detecting whether the DNA segment is amplified.
- 2. A method of Claim 1, wherein the detection primer comprises SEQ ID Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 or 14.
- 3. An oligonucleotide primer comprising SEQ ID Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 or 14.
- 4. An oligonucleotide primer comprising SEQ ID Nos. 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 or 28.
- 5. An oligonucleotide primer comprising SEQ ID Nos. 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41 or 42.
- 6. An oligonucleotide primer comprising SEQ ID Nos. 57, 59, 60, 61 or 62.
- 7. An oligonucleotide primer according to claim 4 for use as a detection primer according to the method of claim 1.
- 8. An oligonucleotide primer according to claim 5 for use as a detection primer according to the method of claim 1.
- 9. An oligonucleotide primer according to claim 6 for use as a detection primer according to the method of claim 1.